



# Module 1: Introduction to Surveying

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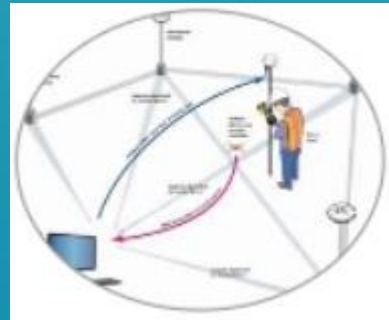
A close-up photograph of a surveying level, which is a green and silver optical instrument mounted on a bright orange and yellow tripod. The background is a blurred outdoor scene. The image is partially obscured by a blue and teal graphic overlay on the right side of the slide.

# Definition

- Art of determining relative positions of points on, above or beneath the earth's surface by means of direct or indirect measurements of distance, direction and elevation
- *Application: water supply and irrigation schemes, railroads and transmission lines, mines, bridges and buildings etc*

# Objective

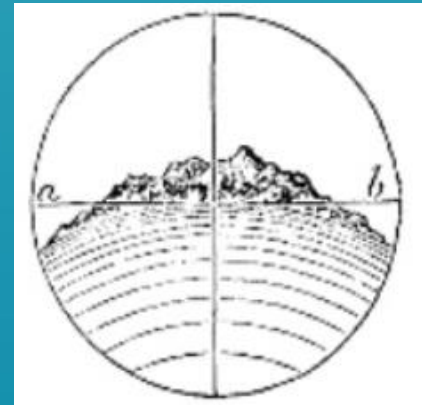
- To prepare plan or map so that it represent the area on a horizontal plane
- To establish boundary of land
- Site selection for various projects





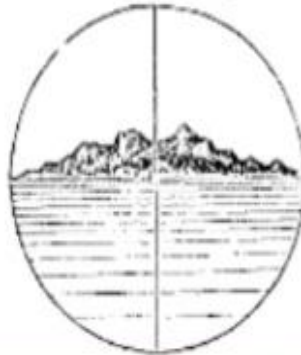
# Classification

- Primarily classified into two-
  - *Plane Surveying* : type of surveying in which earth's surface is considered plane and spherical shape is neglected
  - *Geodetic Surveying* : type of surveying in which earth's curvature is taken into account



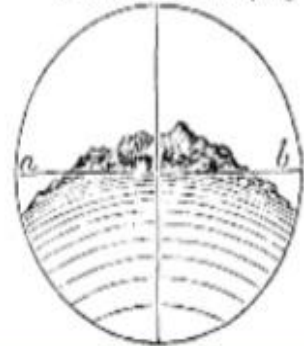
# Comparison

Plane Surveying



- ☐ Earth surface is considered as a **plane** surface.
- ☐ The curvature of the earth is **ignored**.
- ☐ The line joining any two stations is considered as a **straight line**.
- ☐ The **triangle** formed by any three points is considered as a **plane**.
- ☐ The angles of the triangle are considered to be **plane angles**.
- ☐ Carried out for a **small area < 250km<sup>2</sup>**.

Geodetic Surveying



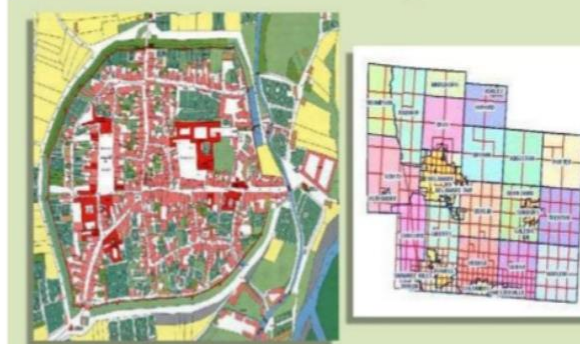
- ☐ Earth surface is considered as a **curved** surface.
- ☐ The curvature of the earth is **taken into account**.
- ☐ The line joining any two stations is considered as a **curved line**.
- ☐ The **triangle** formed by any three points is considered as **spherical**.
- ☐ The **angles** of the triangle are considered to be **spherical**.
- ☐ Carried out for a **large area > 250km<sup>2</sup>**.

# Classification (Contd..)

- *Based on nature of field survey*
  - Topographic
  - Cadastral
  - City



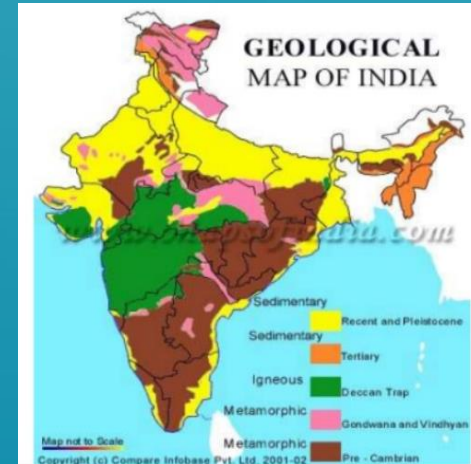
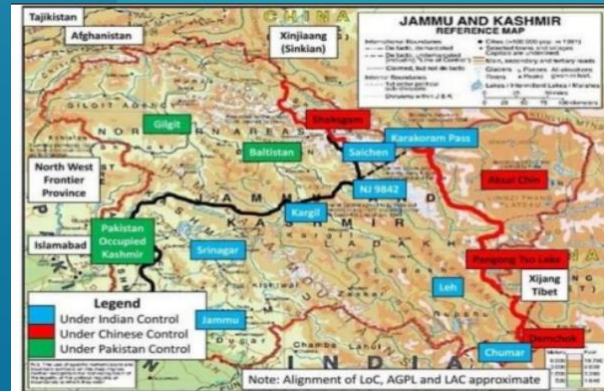
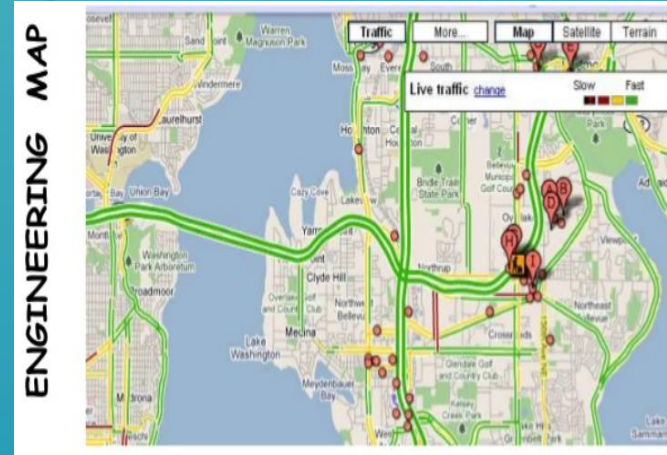
CADASTRAL MAP





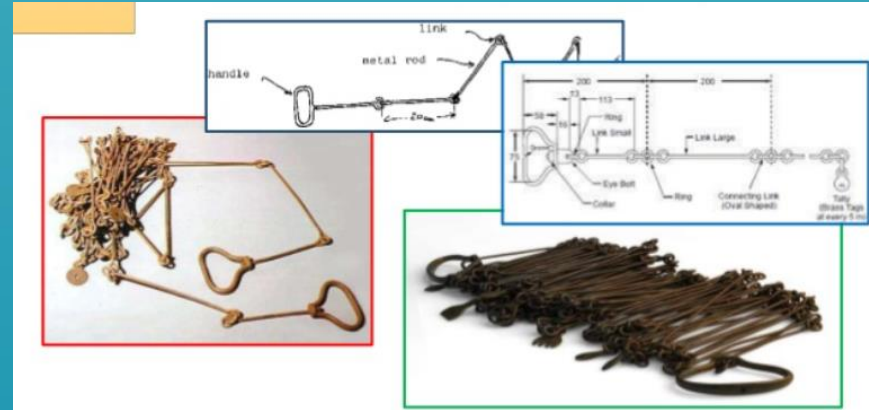
# Classification (Contd..)

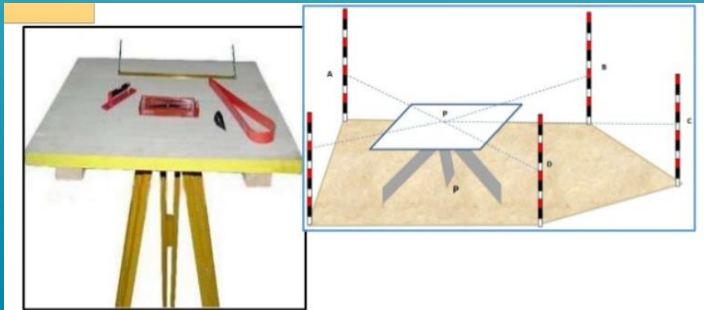
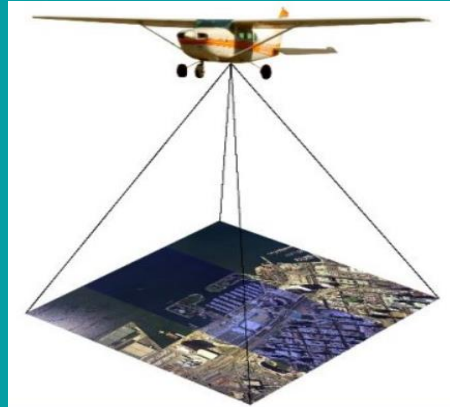
- *Based on object of survey*
  - *Engineering*
  - *Military*
  - *Mine*
  - *Geological*



# Classification (Contd..)

- *Based on instruments used*
  - *Chain*
  - *Traverse*
  - *Theodolite*
  - *Triangulation*
  - *Tacheometric*
  - *Plane Table*
  - *Photogrammetry*
  - *Aerial*





(i) To work from whole to part





# Principle of Surveying

(ii) To locate a point by measurement from 2 point of references

